Forest Planning, Assessment and Policy Review (Indicator 54)[1]

Extent to which institutional framework supports . . . ***Including the Capacity To Undertake and Implement Periodic Forest-Related Planning, Assessment, and Policy Review, Including Cross-Sectoral Planning and Coordination***

Rationale and Interpretation

Forests are affected by a wide variety of physical, economic, and social influences, many of which originate beyond the forest community in sectors such as energy, agriculture, transportation, communication, environment, and government. The sustainability of forests is dependent on societies' institutional ability to comprehensively evaluate trends and conditions in these diverse sectors and to subsequently take responsive actions that will ensure the sustained use, management, and protection of forest resources and the communities that are dependent upon them. These actions are typically predicated on institutional conditions that foster well-focused and technically-sound plans, assessments and policy reviews that are sensitive to a range of forest values and that are coordinated with a variety of forest-related sectors (Roundtable on Sustainable Forestry 1999).

The focus of the indicator is on the institutional capacity available to conduct planning, assessments, and policy reviews. Useful information for measuring the indicator are compilations of public and private agencies and organizations involved (national and subnational jurisdictions); frequency with which plans, analyses, and reviews are prepared; financial and professional resources devoted to these activities; and ability (effectiveness) of public and private institutions to accomplish objectives involving conservation and sustainability. Of special concerned is information describing whether agencies, plans, assessment, and reviews can be expected to address issues involving coordination and cross-sectoral planning and coordination.

Suggested by Indicator 54 are various concepts and principles that are to be addressed. To guide this review, brief definitions of four important concepts are *planning* — disciplined procedures undertaken to guide organizations having an interest in forest sustainability (for example, strategic resource planning, land use, and management planning); *assessments* — comprehensive examinations of present and prospective conditions (ecological, economic, political) that are likely to

---

[1]Prepared by Paul V. Ellefson (pellefso@umn.edu), Professor, and Calder M. Hibbard, Research Specialist (hibb0006@umn.edu), Department of Forest Resources, University of Minnesota. St. Paul, MN. Draft prepared February 2002. Anonymously reviewed and subsequently revised August 2002.

affect forest sustainability; *policy review* –- development and examination of options for addressing important issues involving forest sustainability; *cross-sectoral planning* — planning that embraces diverse (often separate) ecological, economic, and political structures and conditions important to forest sustainability; and *coordinating* — harmonizing (integrating) plans, assessments, and policy reviews important to forest sustainability.

The indicator draws special attention to the institutional capacity to engage in "cross-sectoral planning and coordination." A State or Nation's forestry sector may be but one of many sectors capable of fostering sustainability and conservation of forests. Potential interfaces (potential for cross-sectoring) are many, including, interfaces between project plans, forest sector plans, and macro or national plans; interface between resource plans within, but conditional on, forests (for example, timber, recreation, range, wildlife), interfaces between forestry and nonforestry plans (for example, agriculture, minerals); interfaces between public and private sector plans (public timber land investments and private timber processing facilities); and interfaces between forestry and nonforestry plans involving functional interests (for example, timber management plans and general transportation plans). The number of potential interfaces relevant to forest sustainability surfaces considerable opportunity for coordination (Ellefson 1985,Greeley1966). Identifying the institutional capacity that addresses these interfaces and promotes coordination among them is another matter.

Conceptual Background

Planning Activities

Planning is often considered a central component of forest land management. Statutes and administrative directives governing the use, management, and protection of forests invariably set forth requirements for agency development of plans, directives that provide the framework within which managers can develop operational approaches needed for accomplishing an organization's mission. Since private and public interests in the use, management, and protection of forests are part of dynamic political and economic systems, plans are subject to periodic review and revision. Coordination of various types and levels of plans prepared in response to various local, State, and Federal statutory requirements is an onerous task. An effective approach to coordinating, and in some cases reconciling, plan development, and implementation in such an environment has yet to be fully developed.

Plans focused on forest resources are highly variable in their purpose, content, and focus. However, such plans can take the form of a *strategic program plan* which sets general direction toward an agency's mission (or vision) and results from a formalized but modest set of exercises or from the combined responses of an agency to continuing streams of often unexpected issues (U.S. Congress 1990). Examples of the latter are State and Federal agency actions responding to unexpected judicial and

legislative directives, actions which when combined form a defacto strategic plan. Statewide forest resource plans prepared by lead forestry agencies in State government and the plans required of the USDA Forest Service by the Forest and Rangeland Renewable Resources Planning Act of 1974 and the Government Performance and Results Act of 1993 are examples of strategic plans resulting from more formalized exercises.

Plans can also be very focused in identifying expected outcomes, as in the case of *land use and management plans*. Of interest is agency capacity to develop plans that are specific enough to provide clear direction for management activities and concrete enough to measure success. They identify uses, outputs and conditions that are desirable and feasible, explaining how management will affect key sites, produce important outputs, and protect vital resources and ecosystems. Land use and management plans tend to be the product of rationale planning approaches that require clearly specified objectives, alternatives, decision criterion, and implementation and monitoring procedures (U.S. Congress 1992). Plans for each of the Nation's national forests, as prepared by the Forest Service under authorities set forth by the National Forest Management Act of 1976, and plans for each refuge prepared by the USDI Fish and Wildlife Service as called for by the National Wildlife Refuge System Improvement Act of 1997 are examples of use and management plans for public lands. Plans prepared by nonindustrial private forestland owners in response to many fiscal incentive programs (for example, Forest Stewardship Act of 1990) and tax incentive programs (for example, property tax relief) are examples of private planning initiatives.

Plans developed to guide the use, management, and protection of forests can emerge from statutes that require direct and exclusive consideration of forests as well as from statutes that authorize the development of broad plans of which forests are but one element *(multisector plans*). An example of the former is the strategic planning process called for by the Forest and Rangeland Renewable Resources Planning Act of 1974 which calls for plans that address a variety of interests in forests (for example, wildlife, fish, timber, grazing)and requires interdisciplinary consideration of desired forest conditions. Some multisector plans focus on a specific physical resource (for example, air or water) over which the use and management of forests have a potential to impact. Examples of more broadly construed multisector plans are those required of agencies that are responsible for administering the Endangered Species Act of 1973, Coastal Zone Management Act of 1972, Clean Water Act of 1987 and the Clean Air Act of 1990. State governments also develop multi resource plans that affect forests, plans that are often developed in response to examples of Federal laws just identified.

Judgments about how well institutions execute responsibility for developing plans (whether strategic program, land use and management, or multisector) and the implementation of planning processes presumes the existence of standards or measures of goodness. One obvious source of such standards is the statutes that authorize an agency to engage in the planning activities (for example, required public participation, preparation by interdisciplinary teams). Examples of other commonly advocated standards are legal sufficiency, ability to resolve conflict, cost-effective, foundation of good data and sound analyses, implementable on the ground, clear vision communicated, completed on time, actively lead by administrators, and flexible so as to accommodate unexpected events. Although not inclusive, these standards illustrate the range of conditions that are involved in drawing conclusions about the strength and weakness of forest planning activities (Bryson 1988, Gray and Ellefson 1987, Larsen and others 1990, Teeguarden 1990).

Assessment Activities

Assessments are comprehensive examinations of present and prospective conditions that are likely to affect the use, management, and protection of forests both now and in the future. They are often viewed as supportive of plan development in that plans generally respond to assessment-identified gaps between current and some desired condition regarding the use, management, and protection of forests. Public agency developed assessments have traditionally been detailed, comprehensive, data-driven exercises, although movement is toward assessments that examine broad trends in resource, economic, and social conditions to which a forestry agency might adapt or possibly attempt to influence (Sample and LeMaster 1995). Some assessments are developed for purposes of evaluating (monitoring) agency progress toward key goals and objectives that have been identified in a plan. Examples of assessments are the Forest Service's renewable resources assessment (prepared every 10 years) as called for by the Forest and Rangeland Renewable Resources Planning Act of 1974, USDI Fish and Wildlife Service's critical habitat assessment for threatened and endangered species as called for by the National Wildlife Refuge System Administration Act of 1966 (amended 1997), and various statewide resource assessments carried out by the forestry agencies of State governments (including the criterion and indicators assessments which are being prepared by an increasing number of States).

Policy and Program Review Activities

Anticipating, evaluating, and developing options for addressing important forest resource issues is the focus of policy and program analysis. Organization's typically select issues requiring analysis on the basis of (for example) their urgency and strategic significance, programmatic importance and geographic scope, and fiscal implications and expectation of useful results from analysis. The clients of public agency policy analyses are generally forestry agency executives, although leaders in other branches of government and in the private sector often seek the results of policy

analysis. As examples, topics addressed by the policy analysis staff of the Forest Service include payments to States from national forest receipts, water resource policy and the management of forests, and role of public and private recreation enterprises. Policy analysis is also carried out by the renewable resources and planning staff of the USDI Bureau of Land Management, planning and evaluation staff of the USDI Fish and Wildlife Service, and the Office of Policy, Economic and Innovation of the U.S. Environmental Protection Agency. State government forest agencies also have policy and program analysis capabilities (for example, Resource Policy Division of the Oregon Department of Forestry). Private organization's also represent institutional capacity to undertake policy and program reviews.

Current Institutional Capacity

Private Sector Capacity

Private organization's often represent significant institutional capacity to undertake policy and program reviews. For example, industrial forestry concerns periodically prepare periodic policy reviews of their strategic position in forest product markets and reviews of corporate landownership strategies. Similarly, private companies looking to timber land as a long-term investment opportunity often undertake careful review and analysis of such opportunities (for example, Hancock Timber Resource Group). Private organized interest groups also engage in policy and review and analysis activities, often as a means of influencing the development of public policy to be focused on the use and management of forests. Examples are the Society of American Foresters (for example, Forest Wildlife-Habitat Relationships: Population and Community Responses to Forest Management [2002]), National Association of State Foresters (for example, Review of State & Private Forestry Deputy Areas of Forest Service [2002]), Pinchot Institute for Conservation (for example, Allocating Cooperative Forestry Funds to States: Block Grants and Alternatives [2001]), Wilderness Society (for example, National Forests: Policies for the Future [1988]), and Sierra Club (for example, Forest Fires: Beyond the Heat and Hype [2002]). Also representing policy review capacity is special interest group review of National Forest Land Management Plans and critique of plans to offer timber sales from public forests.

Private sector institutional capacity for land management planning is apparent in the development and implementation of management plans for private forests. In some cases, forest management certification programs require development of a management plan as a prerequisite for certification (for example, certification of forest management practices by the Sustainable Forestry Initiative of the American Forest and Paper Association). As for private sector landowner capacity to prepare plans, in 1994, approximately 5 percent of nearly 10 million private landowners had a plan for the management of their forest property (Table 1). Nationally, these plans directed the use and management of forest on nearly 154 million acres of private forest. Thirty-seven percent of the plans were prepared by a State government employee (service

forester), while landowners (21.7 percent) and consultants (10.7 percent) were next most frequent as plan preparers. Consultants were responsible for plans applied to more than 25 million acres of private forest land. For 1998, the Forest Service reported the preparation of nearly 28,000 forest management plans (including forest stewardship plans) that were applied to more than 1.8 million acres of private forest (Forest Service 1999) (forest stewardship plan preparation is available by State). As for implementation of forest management plans, a national assessment of forest stewardship plans found the 84 percent of landowners with such plans had begun to implement them (applying at least one recommended activity (for example, thinning trees) (Esseks and Moulton 2000).

Private sector capacity to prepare land management plans is also reflected by the legal requirements of State forest practice regulatory programs. Required as a prerequisite to timber harvesting on private forests (for example California, Oregon, Washington), landowners must prepare a timber harvest plan that prescribes forestry practices considered critical to the sustainability of forest conditions. In the early 1990s, the California Board of Forestry processed between 1,200 and 1,500 such plans per year, while the Oregon Department of Forestry and Washington's Division of Forest Practices processed 15,000 to 20,000 per year and 10,000 to 15,000 per year, respectively (Ellefson and others 1995).

Table 1. Forest Management Plans Prepared by Private Forest Owners by Type of Owner and Type of Plan Preparer, 1994

Management Plan Preparation	Owners		Area	
	Number (thousands)	Proportion (percent)	Acres (millions)	Proportion (percent)
Owners with Written Plan	531.2	5.3	153.6	39.0
Forest Industry	2.4	0.5	65.5	42.6
Nonindustrial Private	528.8	99.5	88.1	57.4
Owners without Written Plan	8,594.1	86.8	226.2	57.5
Unknown Status	784.9	7.9	13.6	3.5
TOTAL	9,901.7	100.0	393.4	100.0
Plan Prepared by:				
Owner	114.8	21.7	16.7	19.0
Consultant	56.5	10.7	25.5	28.9
Industrial Forester	20.6	3.9	8.9	10.1
State Government Employee	196.2	37.1	16.8	19.1
Extension Service	8.9	1.7	0.9	1.0
USDA Natural Resource	47.3			
Conservation Service		9.0	4.6	5.2
Other	87.9	16.6	24.0	27.3
TOTAL	532.2	100.7	97.4	110.6

Note: Table total exceed 100 percent because plans prepared by more than one type of preparer.
Source: Birch 1996.

Federal Government Capacity

Planning Activities

Federal institutional capacity for planning the use, management, and protection of forests have existed for many years, with early planning activities most often being initiated by agency executives seeking to define broad strategic direction for their agency's activities. In recent years, however, Federal laws have required agencies to engage in planning that is more formal in process and more intense in substance. Prior to 1974, Congress did not specifically require any Federal land management agency to conduct formal systemwide planning (Coggins and others 1993). Today there are at least 26 Federal statutes that require major agency-wide activities involving the preparation of strategic program or land use and management plans; one-third of which involve statutory planning requirements that are exclusive to forests (Table 2). The planning requirements of these statutes requiring agency-developed plans focused on forests are nearly evenly split between requirements for the preparation of strategic program plans and land use and management plans (Table 2). As for the range of values addressed, the planning requirements focused exclusively on forests address a wide range of forest values (water, wildlife, timber, recreation) while those not specific to forests tend to have primary concern for a single forest value. For example, water is the major concern of the Federal Water Pollution Control Act Amendments of 1972 while wildlife (especially those threatened or endangered) is the exclusive concern of the Endangered Species Act of 1973. Although a number of statues require agency prepared plans to be coordinated with related sectors, in most cases the statutory requirement to do so is unclear. This lack of statutory clarity is also the case with regard to requirements for updating plans, although there are notable exceptions. For example, the National Forest Management Act of 1976 is very clear in this respect (revise plans at least every 15 years). In many cases (for example, the Clean Water Act of 1987) statutes require the preparation of an initial plan and are silent on subsequent revision or modification of that plan. Most, but certainly not all, Federal statutory planning requirements consider all major forest land categories. Examples of Federal agency response to strategic and land use and management plans are presented in what follows.

Table 2. Federal Statutes Providing Institutional Authority for Planning Activities Involving Forests and Forestry by Various Planning Characteristics, 2001

Federal Statute Requiring Some Form of Planning Activity	Primary Type of Plan Required	Range of Forest Values Addressed	Coordination with Plans for Related Forest Sectors	Periodic Updating of Plans Required	Major Forest Ownership Category Addressed
Planning Focus Directly and Exclusively on Forests and Forestry					
Cooperative Forestry Assistance Act of 1978	Strategic	Yes	Yes	Unclear	All Ownerships
Forest and Rangeland Renewable Resources Planning Act of 1974	Strategic	Yes	Unclear	Yes	All Ownerships
Forest and Rangeland Renewable Resources Research Act of 1978	Strategic	Yes	Yes	Unclear	All Ownerships
Mcintire-Stennis Forest Research Act	Unclear	Yes	Unclear	Unclear	All Ownerships
Multiple-Use Sustained Yield Act of 1960	Unclear	Yes	Yes	Unclear	Federal
National Forest Management Act of 1978	Management	Yes	Yes	Yes	Federal
Renewable Resource Extension Act of 1978	Strategic	Yes	Yes	Yes	All Ownerships
Planning Focus Broad Based, Including (but not exclusive to) Forests and Forestry					
Administrative Procedures Act of 1946	Strategic	Yes	Unclear	Yes	All Ownerships
Anadromous Fish Conservation Act of 1965	Strategic	No	Unclear	Unclear	All Ownerships
Clean Air Act of 1990	Strategic	Yes	Unclear	Unclear	All Ownerships
Clean Water Act of 1987	Strategic	No	Yes	Yes	All Ownerships
Coastal Zone Management Act of 1972	Management	Yes	Yes	Yes	All Ownerships
Endangered Species Act of 1973	Management	No	No	Unclear	All Ownerships
Federal Insecticide, Fungicide and Rodenticide Act (as amended 1996)	Management	Yes	Unclear	Unclear	All Ownerships
Federal Land Policy and Management Act of 1976	Strategic	Yes	Yes	Yes	Federal
Fish and Wildlife Conservation Act of 1980	Management	No	Unclear	Yes	All Ownerships
Government Performance and Results Act of 1993	Strategic	Yes	Yes	Yes	All Ownerships
Land and Water Conservation Fund Act of 1965	Management	No	Unclear	Yes	All Ownerships
National Environmental Policy Act of 1969	Strategic	Yes	Yes	Unclear	All Ownerships
National Park Service Organic Act of 1916	Management	No	Unclear	Unclear	Federal
National Trails System Act of 1968	Management	No	Yes	Unclear	All Ownerships
National Wildlife Refuge System Administration Act of 1966 (1997)	Management	No	Yes	Yes	Federal
Soil and Water Conservation Act of 1977	Strategic	Yes	Yes	Yes	Private
Surface Mining Control and Reclamation Act of 1977	Management	Yes	Unclear	Unclear	All Ownerships
Wilderness Act of 1964	Management	No	No	Unclear	Federal
Wild and Scenic Rivers Act of 1968	Management	No	Yes	Unclear	All Ownerships

Source: Platter and others 1998, Shoenbaum and Rosenburg 1996.

Twenty-six statutes are implemented by more than 10 different Federal agencies and results in plans that vary in geographic scope (national, regional, local) and relevance to the use and management of forests (Coggins and others 1993. Dolgin and Guilbert 1974, Goble and Freyfogle 2002, Mansfield 1993, Platter and others 1998, Schoenbaum and Rosenburg 1996, Forest Service 2002, West Publishing Company 1997).

Forest Service. The Forest Service is responsible for the National Forest System, forest resources research, and for providing technical and financial assistance to State and private forestry agencies. A variety of statutes require the Forest Service to prepare strategic programs as well as land use and management plans. (In addition to the more multisector laws that guide the planning of resources use and management generally, the Forest Service must give consideration to Federal statutes such as the Alaska National Interest Lands Conservation Act of 1980, Fish and Wildlife Conservation Act of 1980, Archeological Resources Protection Act of 1979, Cooperative Forestry Assistance Act of 1978, Surface Mining Control and Reclamation Act of 1977, Wild and Scenic Rivers Act of 1968, Wilderness Act of 1964, National Forest Roads and Trails Act of 1964, and the Multiple Use-Sustained Yield Act of 1960). An example of strategic program planning is the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) that requires preparation of a resources assessment (every 10 years), a resource program (every 5 years looking to conditions 45 years hence), a Presidential statement of policy (to guide budget formulation), and annual reports on progress toward implementation of the planning documents (Office of Technology Assessment 1992a). The process requires consideration of all forest values, coordination with other Federal agencies, and cooperation with other levels of government (especially State governments). (Since 1993, the Government Performance and Results Act [GPRA] preempted strategic planning legislative authorities for most Federal agencies. As such, the program element of RPA has been subsumed [in essence] by the GPRA; the RPA Assessment provides the context for the GPRA strategic plan).

The agency's response to the Government Performance and Results Act of 1993 is another example of strategic program planning. Responding to the Act, the 2000 Plan (revised) sets forth strategic direction for the agency for a 5-year period, with each year's funding being dependent on progress toward accomplishing the goals specified in the plan (Forest Service 2000a). Four broad goals are identified (ensure sustainable ecosystems, provide for multiple benefits, ensure development and delivery of information, and ensure organizational effectiveness), each of which is given operational clarity by more focused objectives (for example, improve and protect water conditions, improve knowledge base through research and monitoring), time frames for accomplishment, and measures of performance. The strategic plan also sets forth provisions for program evaluations and coordination of crosscutting functions.

The Forest Service also is responsible for land use and management planning under authorities specified in the National Forest Management Act of 1978. Specific to the national forests, the latter sets forth planning processes and calls for guidelines (rules) that focus attention on the availability of land for resource management, potential levels of resource use and management, and ways in which a variety of resource management practices are to be carried out. The actual planning process involves 10 steps, including identification of potential uses and estimated outputs; response to issues of public concern; protection of especially valuable resources and ecosystems; and plan implementation and monitoring (Office of Technology Assessment 1992b, Forest Service 2000b). Plans (identified as Land Resource Management Plan) are to be revised at least every 15 years, must comply with related and relevant Federal environmental and resource statutes, and are to be vertically integrated with other planning levels in the agency (nationwide: strategic plan; region: regional guide; national forest: land resource management plan; and project-level: specific projects). More than 85 national forest plans are to be revised during the period beginning in 1999 and ending in 2004.

USDI Bureau of Land Management. The USDI Bureau of Land Management administers 264 million acres of Federal public land and the mineral rights underlying 564 million acres of Federal public land. From a strategic plan perspective, the USDI Bureau of Land Management has also responded to the Government Performance and Results Act of 1993. The agency's strategic plan sets forth five major goals (blueprint goals) (serve current and future client groups, restore and maintain health of land, promote collaborative management, improve business practices, and improve human resources' management), 43 performance goals (for example, preserve natural and cultural heritage, establish and implement management

standards and guidelines), and a variety of results to be accomplished over a 3- to 10-year period (for example, evaluate areas and resources that may warrant special recognition, incorporate comprehensive standards for public land health into existing land use plans). The agency coordinates plan implementation at the national and local level with 14 other Federal agencies.

The USDI Bureau of Land Management also engages in land use and management planning (Williams 1987). The agency is guided by an especially wide range of Federal statutes and executive orders that in some measure require planning activities and, where so, often require consideration of forests (in addition to the more multisector laws that guide institutional capacity for planning of resources use and management generally, the USDI Bureau of Land Management must give consideration to Federal statutes such as the Colorado River Basin Salinity Control Act, Federal Coal Leasing Amendments Act of 1976, Taylor Grazing Act of 1934, Public Rangelands Improvement Act of 1978, and the Wild and Free-Roaming Horse and Burro Act) (USDI Bureau of Land Management 2000a). However, the agency's major land management planning authority proceeds from the Federal Land Policy and Management Act of 1976. The latter require the Bureau to prepare land use plans that provide management direction for the Nation's public lands. Such is an integral part of a three-tier agency planning structure within the agency, namely a national strategic plan (responding to the Government Performance and Results Act of 1993), resource management plans, and plans for areas of critical concern (unique wildlife and special ecosystems). The resource management plans, of which 108 have been developed since 1984, address specific resource conflicts, reflect public participation and comment, and are accompanied by an environmental impact statement.

The USDI Bureau of Land Management planning process developed in response to the Federal Land Policy and Management Act of Act of 1976 is as follows (generalized): identify issues and concerns, assess information, identify desired outcomes, and specify allowable uses and actions needed to achieve desired outcomes. Statutory limitations on the implementation of this process are (examples) requirements to inventory resource conditions on public lands, involve the public in plan development, comply with multiple use principles, coordinate plan development and implementation with other Federal, State, local, and tribal government, give priority designation and protection to areas of critical environmental concern, comply with applicable pollution control laws, and recognize development rights of mining claimants (USDI Bureau of Land Management 2000a, 2000b). The agency's Land Use Planning Handbook requires special consideration be given to forests and forestry, namely describe healthy forest conditions and the best management practices that can be applied in order to accomplish such conditions (USDI Bureau of Land Management 2000b).

USDI National Park Service. The National Park Service is responsible for the management of 83.6 million acres of public land. Using authority granted by the National Park Service Organic Act of 1916 and administrative rules and directives pursuant to the Act, these lands are subject to four interrelated planning processes, namely general management planning (agencywide mission and goals), park strategic planning (park-level mission and goals), implementation planning (agencywide and park-level plans of action), and annual performance planning (agencywide and park-level measures of progress). The order in which these processes occur flows from broad-scale general management planning through progressively more specific strategic, implementation, and performance planning (USDI National Park Service 1998). Major principles guiding the agency's planning activities include use of interdisciplinary planning approaches and principles; scientific and technical information in decisionmaking; peer review panels to address conflicts over validity and interpretation of information; alternative dispute resolution processes (internally and externally); and review and analysis of post-litigation decisions seeking ways of improving future decisions (USDI National Park Service 2001).

Although the agency's planning activities are heavily focused on specific park units (taking the form of land use and management plans), an agency wide strategic program plan has been developed in response to the Government Performance and Results Act of 1993 (USDI National Park Service 2000). The plan focuses on four major goals, namely preserve park resources, provide for public enjoyment, strengthen cultural and recreation resources, and ensure organizational effectiveness. Eleven strategies for accomplishing these goals are specified (for example, develop additional partnerships, improve technology and databases), and various cross-agency issues and suggestions for their resolution are presented (for example, working with various Federal agencies on south Florida ecosystem restoration). The agency also suggests management and data issues to be dealt with and describes plans for evaluating programs.

USDA Natural Resource Conservation Service. The USDA Natural Resource Conservation Service is responsible for a wide range of forest resource programs, all of which require some level of planning prior to their implementation. These planning activities are conducted in accord with authorities granted by the Soil and Water Conservation Act of 1977 and the Government Performance and Results Act of 1993. The former requires the preparation (every 10 years) of an appraisal of the Nation's soil, water and related resources and the development (every 10 years) of a soil and water conservation program. These documents are to be consistent with the findings of resource inventories and assessments, identification and analysis of alternatives, consultation and consensus building processes, and sound principles of plan implementation and program evaluation. They are to be transmitted to the U.S. Congress as are annual reports (to accompany proposed budgets) of progress in implementing the program. The agency's mission statement highlights the

importance of conservation planning, in that planning is to guide the agency toward programs that encourage comprehensive planning of natural resources on private and other non-Federal land. Such is to involve processes that integrate social, economic, and ecological resource concerns while also maintaining natural systems and ecological processes. Only two plans and appraisals have been made by the USDA Natural Resource Conservation Service under authorities established by the Soil and Water Conservation Act of 1977.

The agency's planning activities involving forests are responses to a number of forest and related programs that have been assigned to the agency for implementation. These planning activities give direction to programs that provide for natural resource information, community planning and development, conservation cost-share program assistance, conservation planning and implementation, erosion control and reduction, farmland protection, fish and wildlife habitat improvement, forest improvement and management, range management, stream restoration, water management, water quality improvement, wetland restoration and protection, watershed planning, conservation technical assistance, emergency watershed protection program, and natural resources inventory. Most of these functions are carried out in cooperation with State governments and typically require State developed plans prior to their implementation by the agency. Examples are the Forestry Incentives Program, Conservation Reserve Program, and the Stewardship Incentive Program — all of which are administered in cooperation with the Forest Service.

The agency also responds to the Government Performance and Results Act of 1993 via the preparation of an agency-wide strategic program plan (USDA Natural Resource Conservation Service 2000). The plan identifies 4 major goals (enhance resource productivity, reduce unintended natural resource impacts, protect communities from flood and drought, deliver high-quality services to public) and 14 specific objectives that give a focus to these goals (for example, enhance forestland productivity, enhance fish and wildlife habitats). Coordination of plan development and implementation with other public and private concerns is extensive (especially with State governments) and involves cooperation on matters involving education, research, data collection, and program delivery. Provisions are made for program evaluations, including advance (1 year) insertion of evaluation schedules in the agency's annual operational plan.

U.S. Fish and Wildlife Service. The Fish and Wildlife Service is responsible for conserving, protecting, and enhancing fish, wildlife, and plants and their habitats for the continuing benefit of the Nation. The agency is guided by more than 150 Federal statutes, many of which authorize planning activities that are directly relevant to the use, management, and protection of forests. An example is the agency's role in administering the Endangered Species Act of 1973, a planning role that has been especially important in defining the sustainability of wildlife habitats associated with

public and private forests. Among other agency developed plans that have implications for forest resources are the agency's comprehensive conservation plans for wildlife refuges, information resources management strategic plan, endangered species habitat conservation plans, servicewide strategic and performance plans, and the wildland fire and air quality national strategic plan.

The agency's long range strategic program plan is set forth as a response to the Government Performance and Results Act of 1993 (U.S. Fish and Wildlife Service. 2001a). The plan sets forth 4 mission goals (sustain fish and wildlife populations, conserve habitats through a network of lands and waters, provide for public use and enjoyment, establish partnerships for managing wildlife resources) and 14 long-term goals that implement these mission goals (for example, provide for greater recreation use of wildlife refuges, work with private landowners on eradication of invasive species). Key factors affecting the ability to accomplish these long-term goals are specified (for example, extent of collaboration with partners, extremes in weather and climate conditions) as are coordination activities with common wildlife goals across other Federal agencies that have responsibilities involving wildlife and wildlife habitats (for example, management of South Florida Everglades, implementation of Northwest Forest Plan, recovery of endangered species). The plan has specific provisions for addressing major wildlife habitat concerns on land not directly administered by the U.S. Fish and Wildlife Service. For example, restore and establish (by 2005) 280,000 acres of wetlands habitat, 524,000 acres of upland habitats, and 4,150 riparian or stream miles of habitat not directly owned or controlled by the agency.

The Fish and Wildlife Service also engages in land use and management planning as authorized by the National Wildlife Refuge System Administration Act of 1966 (as amended 1997). Involved is the development of Comprehensive Conservation Plans for refuges that are part of the National Wildlife Refuge System (U.S. Fish and Wildlife Service 2001b). The plans are to provide a clear and comprehensive statement of desired conditions for each refuge and to provide for rationale management decisions needed to accomplish such conditions, including the management of forests considered important as wildlife habitat. The process of developing Comprehensive Conservation Plans involves opportunity for public involvement and for interaction with other Federal agencies that have responsibilities over the management of wildlife. Implementation of completed plans is also to be coordinated with State conservation agencies, tribal governments, and nongovernmental organizations. The U.S. Fish and Wildlife Service expects to complete Comprehensive Conservation Plans for 250 planning areas of the National Wildlife Refuge System by 2006. The plans are to be reviewed and updated at least every 15 years.

U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency is responsible for a wide variety of programs that focus on protecting human health and safeguarding the natural environment—air, water, and land—upon which life depends. The agency influences the use, management, and protection of forests through statutory authorities that focus on water (wastewater, drinking water, ground water), air (acid rain, global warming, emissions), hazardous wastes, insecticides, endangered species, and wetlands and watersheds. Nearly all of these programs involve planning activities that have implications for forests. For example, States must develop implementation plans for meeting air and water quality standards promulgated by the agency under authorities of the Clean Air Act of 1990 and the Clean Water Act of 1987. Authorized by the latter act, plans developed to address nonpoint pollutant sources originating in forested areas have been especially important in determining the type and manner in which many forest practices are applied on private and public forest land.

The U.S. Environmental Protection Agency has developed a strategic program plan in response to the Government Performance and Results Act of 1993 (U.S. Environmental Protection Agency 2000). The strategic plan focuses on 10 goals (clean air, clean and safe water, safe food, preventing pollution, waste management, quality environmental information, sound environmental science, program compliance, and effective agency management), each of which is further focused by a multitude of objectives and performance requirements. The plan's development and implementation occur with coordination of more than 100 Federal, State, and local agencies, tribal governments, business and industry organizations, and environmental and public interest groups.

The above are examples of Federal agencies that engage in planning the use, management, and protection of forests. Other agencies that are so engaged to some degree are the Council on Environmental Quality (rules governing administration of National Environmental Policy Act of 1969), Army Corps of Engineers (administration of wetland provisions of the Clean Water Act of 1987), Department of Defense (plans for Department forest lands), Tennessee Valley Authority (TVA forests and private forests) and the USDI Bureau of Indian Affairs.

Assessment Activities

Federal agency institutional capacity to undertake comprehensive examinations of present and prospective conditions that are likely to affect the use, management, and protection of forests is significant (Table 3). Of the example 22 assessments here identified, two-thirds address a range of forest values, although often only for a specific region or land ownership category (for example, the Interior Columbia Basin Ecosystem Assessment, Northern Lands Assessment, Southern Forest Assessment). Although often unclear in statutes or directives of an administering agency, most of the assessments are coordinated with other agencies and with different ownerships and levels of government. Coordination can be difficult given that assessments involving forests can have differing objectives (timber assessments versus endangered species assessments) and are often undertaken by a number of Federal agencies, many of which do not have forests as their primary responsibility (Johnson and others 1999). Also significant is that most Federal assessments are regional or ecosystems based, namely the area of concern for planning is determined by scientifically defined, ecologically based geographic boundaries (for example, Greater Yellowstone Ecosystem, Interior Columbia River Basin, Northern Spotted Owl Forest Ecosystem) (Hardt 1997).

Agency authority for carrying out assessments is set forth by statutes that call for continuous assessments (monitoring) (acid rain deposition program of the U.S. Environmental Protection Agency), periodic assessments at specified intervals (Renewable Resources Assessment of the Forest Service), or intermittent assessments required to address important issues regarding resource use and management (Forest Ecosystem Management Assessment Report of the Forest Service and cooperating agencies). The latter frequently have a specific geographic focus, usually a multi-State region. Eight of 10 of the identified assessments (Table 3) address conditions on all forest ownerships. Notable exceptions are assessments focused on wildlife refuges, national forests, national park, and Indian forest lands.

Assessments are frequently undertaken in concert with the development of strategic program plans or land use and management plans (Soil and Water Appraisal and the Conservation Program of the USDA Natural Resource Conservation Service). Information about the conditions and capabilities of resources as provided by assessments has proven to be especially useful to the development of such plans. Although assessments have long been useful as a means of evaluating trends in the use and condition of resources, they are increasingly being used to evaluate progress toward key goals and objectives that are specified in agency plans. In this latter respect, they have become especially important for making judgments about progress toward goals specified in agency strategic program plans as required by the Government Performance and Results Act of 1993 (Sample and Le Master 1995).

Table 3. Federal Environmental and Natural Resource Assessments by Type, Administering Agency, and Source of Authority, 2001

Assessment Type and Title	Principal Administering Agency	Authority for Undertaking Assessment
Continuous		
National Acid Precipitation Assessments	U.S. Environmental Protection Agency	Clean Air Act of 1990
Periodic (specified intervals)		
Forest Inventory and Analysis	Forest Service	Forest and Rangeland Renewable Resources Research Act of 1978
Land Use and Condition Inventory	USDI Bureau of Land Management	Federal Land Policy and Management Act of 1976
Soil and Water Resource Appraisal	USDA Natural Resource Conservation Service	Soil and Water Conservation Act of 1977
Air Pollutant Assessment	U.S. Environmental Protection Agency	Clean Air Act of 1990
Water Quality Assessment	U.S. Environmental Protection Agency	Clean Water Act of 1987
Renewable Resources Assessment	Forest Service	Forest and Rangeland Renewable Resources Planning Act of 1978
Indian Forest Land Assessment	USDI Bureau of Indian Affairs	Indian Forest Resources Management Act of 1990
Regional Water and Related Resources Assessment	Water Resources Council	Water Resource Planning Act of 1965
National Forest Resource Assessment	Forest Service	National Forest Management Act of 1976
Wildlife Refuge Resource Assessment	U.S. Fish and Wildlife Service	National Wildlife Refuge System Administration Act of 1966
National Park Resource Assessment	USDI National Park Service	National Park Service Organic Act of 1916
National Biological Survey	USDI National Biological Service	Various Federal statutes
Intermittent (determined by need)		
Environmental Impact Statements	Council on Environmental Quality and Proposing Agency	National Environmental Policy Act of 1969
Global Climate Change Affects Assessment	U.S. Department of Agriculture	Global Climate Change Prevention Act of 1990
Endangered Species Review	U.S. Fish and Wildlife Service and others	Endangered Species Act of 1973
Forest Ecosystem Management Assessment Report (FEMAT)	Forest Service and others	National Forest Management Act of 1978 and others
Northern Forest Lands Assessment	Northern Forest Lands Council and Forest Service	
	Multiple Federal agencies	Federal and State statutes
Interior Columbia Basin Ecosystem Assessment	Forest Service	Various Federal statutes
Sierra Nevada Ecosystem Assessment	U.S. Environmental Protection Agency	Various Federal statutes
Regional Impact Assessment of Climate Change	Forest Service and other	Clean Air Act of 1990
Southern Forest Resource Assessment		Various Federal statutes

Policy and Program Review Activities

Federal agency institutional capacity for review and analysis of policy and program initiatives focused on forest resource matters is probably quite substantial. Unfortunately, comprehensive documentation (staff levels, budgets, responsibilities) of this capacity does not exist. A cursory review of agency staff directories and organizational charts reveals that policy and program reviews are undertaken at virtually all levels within agencies, namely the Departmental level (USDA Office of Budget and Program Analysis), agency level (Policy Analysis Staff, Forest Service), mid-level within agencies (Forest Service regional office analysts and planers), and field or operational levels (Forest Service national forest analysts and planners). Analysis and review capacity also exits within the research units of agencies (Forest Service Research, Resource Valuation and Use Research) and agency budget development and coordination units (Division of Budget, Office of Budget, Planning and Human Services of the U.S. Fish and Wildlife Service). Further complicating judgment about policy and program review capacity is the large number of agencies that carry-out reviews of broad-based resource or environmental programs that are not solely focused on (but include) forests (Oversight and Evaluation Staff of the USDA Natural Resource Conservation Service).

The number of policy and program analysts within Federal agencies that are responsible for programs affecting forests probably is in the range of 200 to 300. In the Washington, DC, office of the Forest Service, more than 25 persons have the title of policy analyst, program analyst, or program planner. A summary review of four policy and program review units in three different agencies indicates that policy review activity is being focused on a wide range of issues and coordination responsibilities (Table 4).

Table 4. Federal Agency Units with Policy and Program Review and Evaluation Capacities by Unit Name, Mission, Staff, and Example Analyses, 2001

Agency Policy Analysis and Review Unit	Mission or Responsibilities	Staffing Levels and Assignments	Example Reviews and Analyses
Policy Analysis Staff, Programs and Legislation, Forest Service	Bring existing or emerging policy questions of to the attention of agency leadership and provide quality analysis on assigned policy questions and program evaluations in a timely and objective manner. Coordinate policy analyses with appropriate parties within and outside the government, including analyses of agency-wide direction and standards for economic efficiency evaluation and economic impact assessment.	Nine policy analysts and two support staff.	Evaluation of State payments from national forest receipts; role of public and private recreation enterprises; analysis of water resource policy and the management of forests; assessment of policy options for Forest Service participation in forest products certification; and evaluation of agency funding history, including spending trends and nonappropriated funding.
Office of Policy, Economics and Innovation, U.S. Environmental Protection Agency	Support agency's mission through economic analysis and promotion of innovation needed to achieve better, more cost-effective environmental and public health protection.	Staff assigned to four major Offices or Centers	Development of guidelines for preparing economic analyses, assessment of U.S. experiences with economic incentives for protecting the environment, and review of options for public involvement in environmental permits.
Planning and Evaluation Staff, Division of Policy and Directives Management (DPDM), and Division of Economics, U.S. Fish and Wildlife Service	Provide counsel, coordination, education, and liaison services to the agency and serve as coordinating point for internal and external customers, including the public and other governmental bodies requiring assistance.	Ten policy analysts in DPDM, plus support staff	Evaluation of agency policy options (for Director's Orders) for ozone depleting substances phaseout plan, applicability of the Migratory Bird Treaty Act to Federal agencies, and development of options for the mission, goals, and purposes of the National Wildlife Refuge System.
Oversight and Evaluation Staff, Division of Operations Management and Oversight, Office of Strategic Planning and Accountability, USDA Natural Resource Conservation Service (also Division of Budget Planning and Analysis and Division of Strategic Performance Planning).	Conduct activities to assess quality, accountability, effectiveness, and consistency in the delivery of conservation assistance as defined by laws, executive orders, rules, regulations, and policy so as to improve the use and management of natural resources.	About 30 policy and related program analysts, plus support staff	Develop rational approaches to agency responsibilities regarding the National Environmental Policy Act, assess field staff prepared designs, plans, and specifications for installation of site-specific practices, and evaluate consistency with the agency's mission and strategic plan the products and services developed by cooperating institutes, centers, and collaborating scientists.

State Government Capacity

Planning Activities

State governments' institutional capacity to engage in some form of forest planning activity has existed since the early 1900s, although the character of these activities has changed dramatically over the years as has the number and type of State government organizations so involved. Early planning efforts were largely focused on protecting forests from fire, insects, and diseases and on promoting investments in timber as a forest use. By the mid 1980s, State initiated forest planning activities ranged from the development of comprehensive statewide forest resource plans to the preparation of plans required by forest practice regulatory programs, and from broad forest influencing water quality plans to plans for forest-based rural economic development. Likewise a change, forest resource planning activities, which through the late 1960s was largely the domain of a State's lead forestry agency (division of forestry, bureau of forestry, forestry commission), had by 2000 become the province of many units of State government. In 2000, each State reportedly had 8 to 10 executive branch units of State government (cabinet, subcabinet, governing commission) engaged in some form of planning activity focused on forests (Ellefson and others 2001 and 2002). Also significant has been the increasingly aggressive posture of Federal agencies in requiring (or encouraging via fiscal incentives) the development of multisector plans to address possible impacts of forestry activities on water, air, wildlife, and the like (for example, Clean Water Act of 1987, Coastal Zone Management Act of 1972). The Cooperative Forestry Assistance Act of 1978 also has done much to encourage lead forestry agencies of State government to develop plans that focus on statewide forest resource conditions.

State government capacity to engage in planning activities focused on forests varies dramatically in scope and magnitude. States operate within different planning contexts (large State budgets versus small State budgets; large forest area versus small forest area), undertake different planning approaches (issue driven, goal driven, adaptive planning), and pursue different goals, objectives, and strategies (Gray and Ellefson 1987). Some States seek to develop broad strategic plans that encompass a vision, obstacles to attain the vision, and a plan to deal with such obstacles (for example, Minnesota) while others tend to focus on the specifics of land use and management, especially for the forest land directly owned and managed by State governments (State forests). In yet other States, the aggregate of forest plans prepared by private forest owners as requisites to participation in cost-share programs (Forestry Incentives Program), dedicated easement programs (Forest Legacy Program), or a State's forest practice regulatory programs (rules guiding plan preparation) become, in a sense, plans for State's forests that are in private ownership. Some States have seen fit to exert control over land development generally via statutes directed at growth management (for example, Vermont, Florida,

Maine, Oregon). By implication, forests are thus subject to planning in the sense that certain activities cannot occur within designated forest areas nor can forests be converted to nonforest uses (Wickersham 1994).

Statewide forest resource planning capacity was actively underway in 47 States in 1982, the last time a comprehensive national review of such efforts was undertaken (McCann and Ellefson 1982). In a selective State review in 1985, the Council of State Governments determined that in 1985 29 States had completed first generation plans and were in the process of implementing them (Cole 1985). Most States were investing between $16,000 and $45,000 in forest planning in 1982 and were engaging the professional talents of at least one full-time planner (only eight States had two or more planners). Eight of 10 States sought inter-agency reviews of draft plans and all States had some form of a mechanism for securing public comment. The primary reasons for undertaking planning activities were to secure a clearer understanding of agency long-term directions and to improve the quality of management and administrative structures. Information about current motives for planning and levels of investment in forest resource planning by State governments is not available.

Statewide forest plans have been prepared by nearly all States during the last 20 years (Table 5). However, many have failed to update plans they prepared in the 1980s (for example, Connecticut, Massachusetts, New Jersey, and Ohio) while others have proceeded to revise their plan or substitute a similar planning document or group of planning documents (for example, Colorado, Iowa, Vermont, Wisconsin). Those States that have discarded the notion of a traditional statewide forest plan have focused their planning efforts on specific forest areas or ownerships (for example, Indiana's Strategy for State Forest Land Properties, Alaska's Haines and Tanana Valley State forest plans, Washington's State land plan), more inclusive natural resource plans prepared by more broadly charged natural resource agencies (for example, Illinois Department of Conservation Strategic Plan), strategic focus involving all forest ownerships and management activities (for example, Minnesota's Forest Resources Council's Vision, Goals and Actions for Minnesota's Forests, Kansas and Nebraska's sets of operation or program plans which include fire, stewardship, and urban and community forestry), plans structured according to criterions and indicators of forest sustainability (for example, Oregon's First Approximation Report, Hawaii's Criteria and Indicators for Sustainable Forest Management in Hawaii), agency or governing board's adopted policy directive documents (California's Board of Forestry's Policy Document), and plans for specific forest management activities (for example, California's Fire Plan, Hawaii's Watershed Protection Plan).

Table 5. Status of State Government Initiated Statewide Forest Resource Plans, 2001

State and Region	Statewide Forest Resource Plan	Most Recent Version or Anticipated Update	State and Region	Statewide Forest Resource Plan	Most Recent Version or Anticipated Update	State and Region	Statewide Forest Resource Plan	Most Recent Version or Anticipated Update
North			**South**			**West**		
Connecticut	Yes	1985	Alabama	Yes	1988	Alaska	Yes	1986
Delaware	Yes	2000	Arkansas	Yes	1984	Arizona	Yes	2001
Illinois	Yes	1999	Florida	Yes	1983	California	Yes	1988
Indiana	Yes	1981	Georgia	Yes	1985	Colorado	Yes	1998
Iowa	Yes	1995	Kentucky	Yes	1983	Hawaii	Yes	1983
Maine	Yes	1985	Louisiana	Yes	1984	Idaho	Yes	
Maryland	Yes	1988	Mississippi	Yes	1982	Kansas	Yes	1983
Massachusetts	Yes	1985	North Carolina	Yes	1987	Montana	Yes	1996
Michigan	Yes	1983	Oklahoma	Yes	1985	Nebraska	Yes	1983
Minnesota	Yes	1991	South Carolina	Yes		Nevada	Yes	1982
Missouri	Yes	1991	Tennessee	Yes	1985	New Mexico	Yes	1988
New Hampshire	Yes	1996	Texas	Yes	1981	North Dakota	Yes	2001
New Jersey	Yes	1983	Virginia	Yes	1987	Oregon	Yes	2000
New York	Yes	1985				South Dakota	Yes	1987
Ohio	Yes	1983				Utah	Yes	1981
Pennsylvania	Yes	1997				Washington	Yes	1985
Rhode Island	Yes	1984				Wyoming	Yes	1985
Vermont	Yes	2000						
West Virginia	Yes	2000						
Wisconsin	Yes	2001						

Note: As alternatives to statewide forest plans, many States have seen fit to develop plans for specific areas, regions or landowners or have adopted policy statements and broader agency plans to guide State direction on forest use, management, and protection. As such, many statewide forest plans have not been updated in recent years.
Source: Carpenter 2002, McCann and Ellefson 1982, and responses to inquiries made of Federal and State agencies.

A national review of the effectiveness of State forest resource planning capacity was undertaken in 1987 (Gray and Ellefson 1987). The review found that all States had institutional statutory authority to undertake forest planning and that (in 1987) support for planning between administering agencies and various client groups (for example, legislators, forest industries, environmental groups, State government budget directors) was considerable and increased in strength as planning activities progressed. Most of these consequences were expedited by and consistence with the planning program goals for State governments as sought by the Forest Service. Using authorities set forth in the Cooperative Forest Management Act of 1978, the latter sought to have a statewide forest plan become a State forestry agency's principal guiding document on matters involving long-range direction, operational objectives and targets, budgetary development framework, and balance and coordination of diverse forestry programs (Forest Service 1980). Among the specifically identified benefits of planning was greater sense of long-term program direction, increased coordination among disparate programs, greater public awareness of forest conditions, more program accountability, and increased political support for the forestry programs of State government (Gray and Ellefson 1987).

Assessment Activities

State governments have the institutional capacity and statutory authority to undertake comprehensive assessments of conditions affecting the use, management, and protection of forests. This capacity can be expressed in the form of one-time assessments of important issues or ongoing assessment of resource, economic, or social conditions affecting forests. Although there has been no systematic and comprehensive review of assessment programs implemented by States, the number of such programs is probably in the hundreds. Examples of recent assessments focused on important issues are those involving proposed expansions of chip or particle board industries. At least three States have responded to the latter with comprehensive analyses and recommendations concerning resource and economic conditions: Missouri (Chip Mill Report to the Governor of Missouri, Governor's Advisory Committee on Chip Mills [2000]), North Carolina (Economic and Ecological Impacts of Wood Chip Production in North Carolina, Report of the Southern Center for Sustainable Forests [2000]), and Minnesota (Generic Environmental Impact Statement on Timber Harvesting and Forest Management, Minnesota Environmental Quality Board [1992]). Other examples of State assessment capacity are Washington's Natural Heritage Program Geographic Information System (rare plant species and endangered ecosystems), Vermont

Geographic Information System (rare, threatened and endangered species), Pennsylvania Biological Survey (formal system defining status of plants and animals), Virginia Forest Resource Assessment (assessment of implications of population growth and land use changes for forest resources), Illinois Critical Trends Assessment (statewide and regional environmental conditions), Missouri Resource

Assessment Partnership (develop and disseminate high quality natural resource information), Arizona Land Resource Information System (statewide multipurpose spatial database of resource extent and conditions) and California Fire and Resource Assessment Program (assesses amount, extent, and condition forests and rangelands). Many of these State assessments focus on large ecosystem-bounded regions within a State.

State governments also have the institutional capacity to undertake assessments as part of efforts to understand the environmental consequences of certain proposed actions. State authority to prepare environmental impact statements is typically set forth in statute, executive order or administrative regulation. In the early 1980s, 60 percent of States had established these authorities, although how and to whom such are applied varies considerably from State to State (Fisher and Phillips 1983) (Table 6). For example, California authority applies to government and some private actions, Kentucky authority is limited to certain types of development (power plant siting), and Minnesota's authority can apply to broad geographic areas (generic environmental impact statements). Many of the environmental impact assessments conducted via environmental impact statement processes have a focus on forest conditions (for example, Minnesota's Generic Environmental Impact Statement on Timber Harvesting and Management). Unfortunately, a national review of exactly how often and in what manner such laws have been applied in a forest setting is unclear.

Policy and Program Review Activities

State agencies often have institutional capacity to undertake policy and program reviews of important forest resource issues or programs. However, as is the case with Federal functions of this type, there little information on the extent and focus of such capacity at the State level. Seldom is the forest resource policy and programs review function assigned to a specific stand-alone unit within State government, but rather the function may be spread among many subunits of an agency (for example, fire management, resource management), combined with administrative functions involving personnel, budgeting, legal reviews and legislative liaison activities, or subsumed by a policy and program unit at a higher organizational level. At the cabinet or subcabinet level in State government, nearly 15 States have planning or policy and program review units which very likely have some responsibility to review forest resource programs administered by lower level forest resource units or divisions (Ellefson and others 2001). Examples are the Division of Environmental Planning and Management of the California State Lands Commission; Office of Planning and Assessment, Indiana Department of Environmental management; Office of Planning and Development, Connecticut Department of Environmental Protections; and the Office of Strategic Planning and Policy, Rhode Island Department of Environmental Management. Policy review units specifically identified as part of a State's lead forestry agency are very few in number. They include the Fire and Resource Assessment Unit (23 employees) of the California Department of Forestry and Fire

Protection which, in addition to assessing forests and rangelands, also identifies and analyzes alternative management and policy guidelines, and the Division of Resource Policy, Oregon Department of Forestry which is responsible for program evaluation, resources planning, public affairs, and legislative coordination.

Table 6. State Environmental Impact Statement Requirements by State and Type of Authority, 1980

State and Type of Authority	Authority
Statutory Authority	
California	California Environmental Quality Act of 1970
Connecticut	Connecticut Environmental Policy Act of 1973
Hawaii	Hawaii Session Laws of 1974, Chapter 343
Indiana	Indiana Public Law 98, 1972
Maryland	Maryland Environmental Policy Act of 1973
Massachusetts	Massachusetts General Laws of 1977, Chapter 747
Minnesota	Minnesota Environmental Policy Act of 1973
Montana	Montana Environmental Policy Act of 1971
New York	New York Environmental Quality Review Act of 1976
North Carolina	North Carolina Environmental Policy Act of 1971
South Dakota	South Dakota Environmental Policy Act of 1974
Virginia	Virginia Environmental Policy Act of 1973
Washington	Washington Environmental Policy Act of 1971
Wisconsin	Wisconsin Environmental Policy Act of 1971
Executive Order Authority	
Michigan	Michigan Executive Directive Number Four, May 1974
New Jersey	New Jersey Executive Order Number 53, October 1973
Utah	State of Utah Executive Order, August 27, 1974
Special or Limited Rule Authority	
Arizona	Arizona Game and Fish Commission Policy of July 2, 1971
Delaware	Delaware Coastal Zone Act of 1973; Delaware Wetlands Law of 1973
Kentucky	Kentucky Revised Statutes Chapter 278.179, April 1979 (relating to power plants)
Mississippi	Mississippi Code of 1972 Title 49 Chapter 27 (relating to wetlands)
Nevada	Nevada Laws of 1971, Chapter 311
New Jersey	New Jersey Coastal Area Facility Review Act of 1974-1975; New Jersey Wetlands Act of 1974-1975
Rhode Island	Rhode Island Environmental Rights Act of 1978

Source: Council on Environmental Quality 1980.

Local and Regional Government Capacity

Local and regional governmental jurisdictions are known to engage in planning, assessment and policy and program review activities. Unfortunately, a comprehensive national assessment of these institutional capacities has never been carried out. Whether or not planning and related activities directed at forests are initiated by local governments depends of the extent and importance of forests within a particular local jurisdiction. States that are known to have local governments with planning capabilities are California, Massachusetts, Minnesota, Oregon, and Wisconsin. In some States there exists regional authorities that conduct planning relevant to forests (for example, Tahoe Regional Planning Agency and the Coastal Commission in California). In 2000, more than 400 small-scale local government watershed initiatives (districts) were identified in Western United States (three times the 1995 total) (Natural Resources Law Center 1998, 2000). These initiatives often involve forested watersheds.

Summary of Conditions

Forestry and related public and private organizations in the United States have a long history of institutional capacity for engaging in forest planning and assessment activities as well as for undertaking periodic reviews of forest resource policies and programs. In light of the background and current conditions presented above, the following observations are made about the identification and measurement of institutional capacity to carry-out such activities:

• Private individuals and organizations represent important institutional capacity for carrying out planning, assessment, and policy review activities focused on forests and related natural resources. Diversity among these individuals and organizations is extensive as is the nature of the planning, assessment, and policy review activities they carry out. Whether or not this institutional capacity is actually being translated into meaningful plans and their subsequent implementation is largely unknown.

• Public forest resource agencies at all levels engage in some form of planning, assessment, and policy review activities. In general, there appears to be ample authority to do so, although the institutional capacity for exercising these authorities varies widely within and between different levels of government.

• Institutional planning capacity responds to statutes (or administrative directives) that require direct and exclusive consideration of forests and to statutes that require development of broad multi sector plans (air, water, wildlife) of which forests are but one part. Multisector type authority tends to fragment institutional capacity and the administration of forest activities rather than integrate forest values.

• Agencies of many types and with many different responsibilities for forests engage in planning, assessment, and policy review activities. In only a limited number of cases is there evidence of concerted and effective effort to coordinate these institutional capacities (activities) within and between governments.

• Planning capacity exercised by agencies can lead to strategic program plans as well as land use and management plans. In some cases, these plans are, by default, more an aggregation of individual plans and assessments prepared for specific individual forest ownerships or specific geographic areas. Such is especially true for State governments.

• Some agencies, especially State government agencies, appear to be tending away from exercising institutional capacity focused on the development of statewide strategic program plans. Statewide forest resource plans of State governments are frequently very much out of date, often being replaced by regional or issue-oriented plans and by criteria and indicator driven plans.

• Although some agencies organizationally (institutionally) separate planning, assessment and policy review functions, they most often are combined as a single activity assigned to a single administrative unit. Most States appear to have very limited policy analysis and review capacity, at least in the sense of a specific administrative unit assigned exclusive responsibility for such a function.

• Investments in institutions charged with planning, assessing, and policy review activities involving forests are highly variable in amount and regularity. They are determined by the importance of the forests being managed by an agency and by the willingness of agency leadership to promote the importance and usefulness of planning, assessment and policy review activities.

• Many agencies are quite sophisticated (advanced methods, high investment levels, quality professionals) in their conduct of planning, assessment, and policy review activities. In general, Federal agencies are more so than State, regional, or local government agencies.

• Assessment activities are very often one-time efforts that respond to major issues involving controversy over proposed resource development or management. However, some assessment activities have become monitoring initiatives that are conducted on a continuous basis (air quality monitoring) or at periodic intervals (forest inventory and analysis).

Issues and Trends

The literature identifies a number of major issues and trends in forest planning, assessment, and policy review activities that are worth noting in the context of authority and institutional capacity. Consider the following (Bryson 1988, Hardt 1997, Sample and LeMaster 1995, Forest Service 1990, Forest Service 2002):

• Agencies are increasingly seeking the flexibility necessary to anticipate and take advantage of important opportunities, including the range of possibilities identified by forest planning activities. This interest is making planning exercises more of a political than a technical activity, one that recognizes the uncertainty and risk inherent in plans, assessments, and policy reviews.

• Clients of forest resource programs are increasingly involved (through various collaborative processes) in the development of forest plans and the conduct of assessments and policy reviews. Such is part of a general public expectation for greater interactive decisionmaking with government agencies.

• Institutional capacity for conducting planning, assessments, and policy activities is increasingly fragmented (often conflicting) as are the agencies responsible for conducting such activities. Coordination of these activities with other relevant resource values and resource sectors is increasingly viewed as an important yet difficult task to meaningfully accomplish. This diversity in institutional capacity (and legal authorities) often results from the need to meet the demands of many different and often competing client groups.

• Planning, assessment, and policy analysis are exercises that have become more complex, costly, and time-consuming — in some cases, even redundant. The desire to address all management uncertainties with intensive information gathering and analysis is of growing concern.

• Institutional capacity to prepare forest plans and assessments is increasingly focused on planning boundaries defined by scientifically defined, ecologically based geographic boundaries or the political (State) boundaries of large multi-State regions. Such is driven in large measure by an interest in ensuring the physical sustainability of large forested areas.

• Criteria and indicator approaches are increasingly becoming an organizing pattern guiding institutional capacity focused on the development of forest plans and the conduct of assessments and policy reviews. Such approaches provide a structure to guide program direction and accountability and provide direction for the gathering of information and its subsequent management.

• Procedures for implementing forest plans and the subsequent monitoring of accomplishments toward plan goals and objectives are becoming increasingly more common as a focus for institutional capacity, especially procedures for formally linking plans and the budgetary-fiscal requirements to implement them. Such is in large measure a response to public skepticism of government and an interest in greater accountability of government generally.

• Access to information and the capacity to manage and analyze such information is becoming an increasingly important focus of institutional capacity, yet is often insufficient in amount, quality, and timing. Information gathering is increasingly being considered as an activity this is directly supportive of actions to develop ways of dealing with issues and policy problems rather than as a technical exercise involving the gathering and management of information. Such is a response to cost concerns as well as to the need for information that will serve a wider variety of purposes (planning, monitoring, public relations, policy development).

Information Adequacy

Specification

The variables or combination of variables that can be used to describe institutional capacity to undertake planning, assessment, and policy and review activities, and the agencies and organizations involved therein, are numerous. Especially troubling is determining exactly what information to gather, analyze, and present so as to make a useful picture of institutional capacity. In part this difficulty arises because of the foggy nature of definitions used to describe planning, assessment and policy analysis activities and the extent to which they are interconnected. Even if definition issues are addressed, a plethora of information adequacy concerns continues to arise.

The National Association of State Foresters sought (in 1999) a better understanding of State forestry agency information concerning the institutional setting for planning, assessment, and policy reviews involving forests (National Association of State Foresters 1999). The association reported 5 States with an abundant amount of information concerning institutional capacity for planning and related activities, 12 with sufficient information, and the remainder having very little or no information to describe such activities. As for the quality of information about planning and assessment capacities, 7 States reported it was excellent, 11 adequate, and 6 reported poor quality information.

A focused suggestion on the types of information that would promote a better understanding of the institutional capacity for planning, resource assessment, and policy review is as follows:

• *Extent of activity information* – Except in certain isolated circumstances, information about the institutional capacity to plan, assess and carry out policy analyses activities at various levels of government has not been assembled in any systematic and comprehensive sense (What are the requirements for conducting such activities? Who is responsible for doing so? Are there differences in requirements at different levels of government? Is there consistency across these requirements? Are their legal and constitutional issues at stake between governments? What is the status of local planning and zoning initiatives? To what extent do these activities occur in the private sector?).

• *Coordination information* – Information about requirements to coordinate planning, assessment, and policy analysis activities among and between various institutional levels of government has not been assembled (What are requirements for coordination? Do they allow for cross-sectoral, coordinated planning and policy review? Do they ensure that the cumulative results of local and regional planning will lead to outcomes consistent with national plans and vice versa? Do they allow incorporation of ad hoc planning activities occurring at various times and undertaken by various levels of government?).

• *Procedure and Specification information* – Information about how planning, assessment, and policy review activities are to undertaken by various institutions has not been assembled (Do current statutory requirements prescribe procedures for planning, assessment and policy review? Is such in a detailed format or in a broad framework giving deference to administrators and rule making procedures? Is the full intent of the existing laws that address planning, assessment and policy review activities expressed in current regulations and practices? Do national planning requirements allow for regional and subregional planning? Do requirements specify the need for planning leadership? Do they give guidance to such leadership?).

• *Cumulative effect information* – Information about requirements for effective institutional linkages between national, regional, and subregional planning, assessment, and policy analysis activities has not been gathered (How are such activities encouraged? When summed across institutions, are accumulated results consistent with principles of sustainable forest management?).

• *Investment and Incentive Information* – Information about resources devoted to planning, assessments, and policy analysis activities have not been assembled (What is the magnitude of investments in planning, assessment, and policy review activities? Are there legal and administrative processes for allocating resources to these activities and are they sufficient? Are there provisions [legally or fiscally] for encouraging these activities, especially encouraging cross-sectoral planning activities?).

• *Effectiveness information* — Information about the effectiveness of institutions engaged in planning, assessment, and policy analysis activities has not been compiled except in some very limited cases (Are there legal or administrative requirements to determine efficiency and effectiveness of these activities? What are appropriate measures of success? Are there alternative more effective approaches to carrying out planning, assessment and policy review activities?).

• *Monitoring information* — Information about monitoring as part of institutional capacity for planning, assessment, and policy analysis activities has not be systematically compiled (Are their requirements to monitor the results of these activities and to adapt them to changing circumstances?)

As this review generally, and the above examples specifically, highlight, there is considerable uncertainty regarding the institutional capacity of governments to carry-out planning, assessment and policy review activities. Over the years, there has been no organization or institution that has been assigned special responsibility to gather and prepare timely reports on the status of these activities. The information void is further magnified by the fact that the planning and analysis efforts of private forest landowners (industrial, nonindustrial, Indian, nonprofit) and non-Federal public owners have been very much overlooked. Such becomes especially perplexing given that these non-Federal forest landowners account for nearly two-thirds of the Nation's forest land.

Recommendations

The ability to understand current capacity to influence forest sustainability will depend a great deal on the processes and institutions that are available to carry-out planning, assessment, and policy analysis and review activities as set forth in Indicator 54. The information voids that need to be addressed in order to gain such an understanding are considerable. The following actions seem appropriate:

• *Comprehensive review of capacity*. Conduct a comprehensive review of current organizations that have authority, direction, and resources to undertake forest resource planning, assessment, and policy analysis and review activities. Guided by the above suggested information deficiencies, the review should give attention to each of these activities to the extent they occur at Federal, State, and local levels of

government. In addition, a systematic review of private sector capability to carry out these activities should be initiated.

• *Responsibility for conducting review*. Assign responsibility for conducting reviews (on a continuous basis) of planning, assessment, and policy analysis and review capacities to a specific (current or new) administrative unit located within a Federal agency (for example, Forest Service's State and Private Forestry, Forest Service's National Forest System), a college or university, or a nonprofit organization engaged in policy review activities (Resources for the Future, Inc., Pinchot Institute for Conservation). This responsibility should be assigned to an organization that has a proven track record in conducting analyses and reviews of programs at various levels of government and the private sector.

• *Devote resources to review*. Invest in the review sufficient resources as are necessary (or at least periodic) to provide the type and quantity of information necessary to dramatically improve understanding of current abilities to plan, assess, and analyze conditions important to sustainable forestry.

Indicator Appropriateness

Indicator Definition

Indicator 54 suffers from unclear definition of the major activities to be examined, especially notable being "forest-related planning," "assessment," "policy review," and "cross-sectoral planning and coordination." Each of these words or phrases supposedly embodies an agreed to set of concepts and principles. Such is not always the case as is highlighted by the need to set forth definitions of planning, assessment, and policy analysis earlier in the information review for the indicator. Further compounding the specification problem is that new words or phrases are continually being suggested (for example, "policy planning"), often without reference to well established or newly developed principles or concepts. And last, the data gathering task in muddied by the elusiveness of appropriate units to be included under the umbrella "institution." The indicator would benefit from modest rewording such as "*. . . provides for periodic planning, assessment, and policy reviews that embrace various forest values and fosters the coordination of forest plans and assessments with other sectors*."

Cross-Cutting Conditions

Crosscutting indicator issues involving Indicator 54 are frequent and quite dramatic. Most notable is that the indicator is nearly a perfect mirror of Indicator 49 – except that the focus of 54 is on institutional capacity while 49 is on legal capacity. In many respects, institutional and legal capacities are one in the same with the former possibly being viewed as the framework supporting legal authorities. For purposes of assessing information resources, consideration might be given to merging Indicators 49 and 54 and renaming the merged indicator as suggested above.

Indicator 54 also has other crosscutting problems, particularly as they relate to concepts involving laws and values, public participation, funding, and planning. Among the potentials for difficulty in this respect is Indicator 54's relationship to Indicators 38 (investment in forests), 39 (investment in research), 50 (public participation), 52 (special values), 53 (public involvement and education), 60 (information and data), 61 (forest inventories), 62 (foreign country monitoring), 64 (value integrative methods), 65 (new technologies), and 66 (human intervention impacts). Such are obvious sources of crosscutting implications for Indicator 54. There may be other indicators that are also relevant in this respect.

Literature Cited

Birch, T. W. 1996. Private Forest-Land Owners of the United States: 1994. Resource Bulletin NE-134. Northeastern Forest Experiment Station. Forest Service. Radnor, PA.

Bryson, J. M. 1988. *Strategic Planning for Public and Nonprofit Organizations*. Jossey-Bass, Inc. Publishers. San Francisco, CA.

Carpenter, C. A. 2002. Conservation and Management of Forests in the Northern United States: First Approximation Report. Northeast Area, State and Private Forestry. Forest Service. Durham, NH.

Coggins, G. C., C. F. Wilkenson, and J. D. Leshy. 1993. *Federal Public Land and Resources Law*. The Foundation Press. Westbury, NY.

Cole, L. A. 1985. Forest Resources Planning: State of the States. Council of State Governments. Lexington, KY.

Council on Environmental Quality. 1980. *Environmental Quality: 1979.* Washington, DC.

Dolgin, E. L., and T. G. P. Guilbert. 1974. *Federal Environmental Law*. West Publishing. St. Paul, MN.

Ellefson, P. V. 1985. Forest Sector Plans: Coordination with Nonforestry Interests and National Plans for Development. In: Proceedings of Ninth World Forestry Congress (Mexico City, Mexico). Department of Forestry. Food and Agriculture Organization. United Nations. Rome, Italy.

Ellefson, P. V., A. S. Cheng, and R. J. Moulton. 1995. *Regulation of Private Forest Practices by State Governments.* Station Bulletin 605-1995. MN Agricultural Experiment Station. St. Paul, MN.

Ellefson, P. V. , R. J. Moulton, and M. A. Kilgore. 2001. Programs and Organizations Affecting the Use, Management, and Protection of Forests: An Assessment of Agencies Located Across the Organizational Landscape of State Governments. Department of Forest Resources. University of Minnesota. St. Paul, MN.

Ellefson, P. V., R. J. Moulton, and M. A. Kilgore. 2002. An Assessment of State Agencies that Affect Forests. *Journal of Forestry* 100(6):35-42.

Esseks, J. D., and R. J. Moulton. 2000. Evaluating the Forest Stewardship Program through a National Survey of Participating Forest Land Owners. Center for Government Studies. Northern Illinois University. De Kalb, IL.

Fisher, B. D., and M. J. Phillips. 1983. *Legal Environment of Business*. West Publishing. St. Paul, MN.

Goble, D. D., and E. T. Freyfogle. 2002. *Federal Wildlife Statutes*. Foundation Press. New York, NY.

Gray, G. J., and P. V. Ellefson. 1987. Statewide Forest Resource Planning Programs: An Evaluation of Program Administration and Effectiveness. Station Bulletin 582-1987. MN Agricultural Experiment Station. St. Paul, MN.

Greeley, A. W. 1966. Integration of Forest Development Plans and National Development Plans: Administration, Operational Problems and Possible Solutions. In: Proceedings Sixth World Forestry Congress. Department of Forestry. Food and Agriculture Organization. United Nations. Rome, Italy.

Hardt, S. W. 1997. Federal Land-Use Planning and Its Impact on Resource Management Decisions. In: Public Land Law II by Rocky Mountain Mineral Law Foundation. Pg. 4-1 to 4-55. Denver, CO.

Johnson, K. N., F. Swanson, M. Herring and S. Greene. 1999. Bioregional Assessments: Science at the Crossroads of Management Policy. Island Press. Covelo, CA.

Larsen, G, A. Holden, D. Kapaldo, and others. 1990. Synthesis of the Critique of Land Management Planning. Volume One. FS-452. Forest Service. Washington, DC.

McCann, B. D., and P. V. Ellefson. 1982. Organizational Patterns and Administrative Procedures for State Forest Resources Planning. Staff Paper Series Number 31. Department of Forest Resources. University of Minnesota. St. Paul, MN.

Mansfield, M. E. 1993. A Primer of Public Land Law. *Washington Law Review* 68(4):801-857.

Natural Resources Law Center. 1998. *State Role in Western Watershed Initiatives*. University of Colorado. Boulder Colorado, CO.

Natural Resources Law Center. 2000. *Watershed Source Handbook*. University of Colorado. Boulder Colorado, CO.

National Association of State Foresters. 1999. First Approximation Assessment Report. Washington, DC.

Office of Technology Assessment. 1992a. Forest Service Planning. OTA-F-506. U.S. Congress. Washington, DC.

Office of Technology Assessment. 1992b. Forest Service Planning: Accommodating Uses, Producing Outputs, and Sustaining Ecosystems. OTA-F-505. Washington, DC.

Platter, Z. J. B., R. H. Abrahams, W. Golfarb and R. L. Graham. 1998. *Environmental Law and Society: Nature, Law and Society*. West Publishing Company. St. Paul, MN.

Roundtable on Sustainable Forestry. 1999. Criterion Level Summary: Indicators 48-59. Criteria Technical Committee (CTC). Washington, DC.

Sample, V. A., and D. C. LeMaster. 1995. *Natural Resource Strategic Planning: Components and Processes*. Pinchot Institute for Conservation. Washington, DC.

Schoenbaum, T. J. and R. H. Rosenburg 1996. *Environmental Policy Law*. The Foundation Press. Westbury, NY.

Teeguarden, D. E. 1990. National Forest Planning Under RPA/NMFA: What Needs Fixing? Volume 11. FS-462. Forest Service. Washington, DC.

U.S. Congress. 1990. Forest Service Planning: Setting Strategic Direction Under RPA. OTA-F-411. Office of Technology Assessment. Washington, DC.

U.S. Congress. 1992. Forest Service Planning: Accommodating Uses, Producing Outputs, and Sustaining Ecosystems. OTA-F-505. Office of Technology Assessment. Washington, DC.

U.S. Environmental Protection Agency. 2000. EPA Strategic Plan. EPA-190-R--00-002. Washington, DC.

U.S. Fish and Wildlife Service. 2001a. Fish and Wildlife Service Strategic Plan: 2000-2005. Washington, DC.

U.S. Fish and Wildlife Service. 2001b. Refuge Planning. Land Use and Management Series. Service Manual Parts 600-699. Washington, DC.

USDA Forest Service. 1980. A Guide to Statewide Forest Resource Planning. NA-TP-6. State and Private Forestry. Northeast Area. Radnor, PA.

USDA Forest Service. 1990. Critique of Land Management Planning. Volumes One through 11 (FS 452 through FS 462). Washington, DC.

USDA Forest Service. 1999. Report of the Forest Service: Fiscal Year 1998. Washington, DC.

USDA Forest Service 2000a. Forest Service Strategic Plan (2000 Revision). FS-682. October. Washington, DC.

USDA Forest Service 2000b. National Forest System Land Resources Management Planning: Final Rule. 36 CFR Parts 217 and 219. Washington, DC.

USDA Forest Service 2002. The Process Predicament: How Statutory, Regulatory and Administrative Factors Affect National Forest Management. Washington, DC.

USDA Natural Resource Conservation Service. 2000. Natural Resource Conservation Service Strategic Plan: 2000-2005. Washington, DC.

USDI Bureau of Land Management. 2000a. BLM Manual: Land Use Planning [1601]. Washington, DC.

USDI Bureau of Land Management. 2000b. BLM Land Use Planning Handbook [H-1601-1]. Washington, DC.

USDI National Park Service. 1998. National Park Service: Park Planning. Directors Order Number Two. Washington, DC.

USDI National Park Service. 2000. National Park Service Strategic Plan: FY 2001-2005. Washington, DC.

USDI National Park Service. 2001. National Park Service: Conservation Planning, Environmental Impact Analysis, and Decision-Making. Directors Order Number 12. Washington, DC.

West Publishing Company. 1997. *Selected Federal Environmental Law Statutes*. St. Paul, MN.

Wickersham, J. H. 1994. The Quiet Revolution Continues: The Emerging New Model for State Growth Management Statues. *Harvard Environmental Law Review* 18: 489-618.

Williams, J. E. 1987. Planning Approaches in the Bureau of Land Management. *Trends* 24(2): 24-27.